February 23, 2021

Josh Keller, Associate Director
Rocky Mountain Laboratories
USDHHS-NIH
903 South 4th Street
Hamilton, MT 59840

Dear Mr. Keller:

Montana Air Quality Permit #2991-07 is deemed final as of February 17, 2021, by the Department of Environmental Quality (Department). This permit is for a Biomedical Research Facility. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

Julie A. Merkel
Permitting Services Section Supervisor
Air Quality Bureau
(406) 444-3626

John P. Proulx
Air Quality Specialist
Air Quality Bureau
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JM:JPP
Enclosure

Montana Department of Environmental Quality
Air, Energy & Mining Division

Montana Air Quality Permit #2991-07

Rocky Mountain Laboratories
USDHHS-NIH
903 South 4th St
Hamilton, MT 59840

February 17, 2021

MONTANA AIR QUALITY PERMIT

Issued To: United States Department of Health and Human Services
National Institutes of Health
Rocky Mountain Laboratories
903 South 4th Street
Hamilton, MT 59840

MAQP: #2991-07
Administrative Amendment (AA) Request Received: 01/05/2021
Department's Decision on AA: 1/29/2021
Permit Final: 2/17/2021
AFS #: 081-0005

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to U.S. Department of Health and Human Services, National Institutes of Health, Rocky Mountain Laboratories (RML), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq*., as amended, for the following:

SECTION I: Permitted Facilities

A. Plant Location

RML operates a biomedical research facility located at 903 South 4th Street in Hamilton, Montana. The legal description of the facility is the NE¼ of Section 36, Township 6 North, Range 21 West, Ravalli County, Montana. A complete listing of the equipment at the facility is contained in the permit analysis.

B. Current Permit Action

On January 5, 2021, the Department of Environmental Quality (Department) received an Administrative Amendment (AA) request from RML to correct the million British thermal unit per hour (MMbtu/hr) rating of Boiler #7 (EU008) from 23.7 MMbtu/hr to 24.4 MMbtu/hr.

SECTION II: Limitations and Conditions

A. Operational Requirements

1. RML shall not incinerate any material other than pathological waste, hospital/medical/infectious waste (HMIW) (as defined under 40 CFR 62, Subpart HHH), radioactive waste per Nuclear Regulatory Commission license, or general refuse from the facility (ARM 17.8.749).

2. RML shall not incinerate more than 2,190 tons of pathological waste or general refuse, combined, during any rolling 12-month time period (ARM 17.8.749).

3. RML shall comply with all applicable standards, limitations, and the reporting and recordkeeping requirements contained in 40 CFR 62, Subpart HHH including operator training and qualifications, development of a waste

management plan, testing and monitoring requirements as they apply to this facility (40 CFR 62, Subpart HHH).

4. RML shall not operate both Consumat incinerators simultaneously (ARM 17.8.749).

5. Each Consumat incinerator shall be limited to a maximum charge rate equal to or less than 500 pounds per hour (lb/hr) (ARM 17.8.749).

6. Natural gas consumption at the RML facility shall be limited to 847 million cubic feet during any rolling 12-month time period (ARM 17.8.749).

7. Number 2. (No. 2) Fuel Oil or a blend of Number 1 and Number 2 (No. 1/2) fuel-oil may be used only as a back-up fuel at RML's facility, provided that the oil does not contain greater than 0.5 weight-percent sulfur (ARM 17.8.749).

8. The emergency generators at the RML facility shall be used only as backup sources of power and not as part of normal operations. Each generator shall be limited to 500 hours of operation during any rolling 12-month time period (ARM 17.8.749).

9. RML shall comply with all applicable standards, limitations, and the reporting, record keeping, and notification requirements contained in 40 CFR 60, Subpart IIII, as it applies to the emergency generators at the RML facility (ARM 17.8.340 and 40 CFR 60, Subpart IIII).

10. RML shall comply with all applicable standards, limitations, and the reporting, record keeping, and notification requirements contained in 40 CFR 60, Subpart Dc, as it applies to the three 66 MMBtu/hr natural gas-fired boilers at the RML facility (ARM 17.8.340 and 40 CFR 60, Subpart Dc).

11. RML shall comply with all applicable standards, limitations, and the reporting, record keeping, and notification requirements contained in 40 CFR 63, Subpart ZZZZ, as it applies to the emergency generators at the RML facility (ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ).

B. Emission Limitations

1. RML shall not cause or authorize to be discharged into the atmosphere from the incinerators:

   a. Any visible emissions that exhibit an opacity of 6% or greater averaged over 6-minute block average (40 CFR 62, Subpart HHH).

   b. Any particulate matter (PM) emissions in excess of 0.02 grains per dry standard cubic feet (gr/dscf) (40 CFR 62, Subpart HHH).

   c. Any carbon monoxide (CO) emissions that exceed 5.5 parts per million by volume (ppmv) (40 CFR 62, Subpart HHH).

d. Any dioxins/furans that exceed 0.37 gr/billion dscf or a toxic equivalency value (TEQ) of 0.0087 gr/billion dscf (40 CFR 62, Subpart HHH).

e. Any hydrogen chloride (HCl) emissions that exceed 7.7 ppmv (40 CFR 62, Subpart HHH).

f. Any sulfur dioxide (SO_2) emissions that exceed 4.2 ppmv (40 CFR 62, Subpart HHH).

g. Any nitrogen oxides (NO_x) emissions that exceed 190 ppmv (40 CFR 62, Subpart HHH).

h. Any lead (Pb) emissions that exceed 0.0079 gr/thousand dscf (40 CFR 62, Subpart HHH).

i. Any cadmium (Cd) emissions that exceed 0.0057 gr/thousand dscf (40 CFR 62, Subpart HHH).

j. Any mercury (Hg) emissions that exceed 0.011 gr/thousand dscf (40 CFR 62, Subpart HHH).

All emission limits contained in Section II.B.1.(b-j) are corrected to 7% Oxygen (O_2) where applicable (40 CFR 62, Subpart HHH).

2. RML shall not discharge visible emissions of combustion ash from an ash conveying system to the atmosphere in excess of 6 percent of the observation period as specified in 40 CFR 60.56c(b)(14) of Subpart Ec as required in 40 CFR 62.14412(a) of Subpart HHH (40 CFR 62, Subpart HHH).

3. RML may not cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

4. RML shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

5. RML shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.B.3 (ARM 17.8.749).

C. Testing Requirements

1. Within 60 days after achieving the maximum production rate, but not later than 180 days after initial start-up of the incinerators with the new APCD, RML shall perform source testing on the incinerators to demonstrate compliance with the emission limits contained in Section II.B.1.(a-j) as specified in 40 CFR Part 62.14451(a) of Subpart HHH as required in (ARM 17.8.340 and 40 CFR 62, Subpart HHH).

2. After the initial performance source test(s) required in Section II.C.1, RML shall conduct performance source tests as specified in 40 CFR 62.14452 of Subpart HHH as required in 40 CFR 62.14451(a) (40 CFR 62, Subpart HHH).

   a. RML shall determine compliance with the PM, CO, and HCl emission limits in Section II.B.1.(b), Section II.B.1.(c), and Section II.B.1.(e), respectively, by conducting an annual performance source test (no more than 12 months following the previous performance source test). If all three performance tests over a 3-year period indicate compliance with the applicable emission limit for a pollutant (PM, CO, HCL), RML may forego a performance test for that pollutant for the subsequent 2-year period. At a minimum, a performance test for each pollutant shall be conducted every third year (no more than 36 months following the previous performance test). If a performance test conducted every third year indicates compliance with the applicable emission limit for a pollutant (PM, CO, HCl), RML may forego a performance test for that pollutant for an additional 2 years. If any performance test indicates non-compliance with the respective emission limit, a performance test for that pollutant shall be conducted annually until all annual performance tests over a 3-year period indicate compliance with the emission limit.

3. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual unless alternate equivalent requirements are determined by the Department and the source to be appropriate, and prior written approval has been obtained from the Department (ARM 17.8.106).

4. The Department may require further testing (ARM 17.8.105).

D. Monitoring Requirements

RML shall maintain compliance with all applicable monitoring requirements listed in 40 CFR 62, Subpart HHH (40 CFR 62, Subpart HHH).

E. Operational Reporting Requirement

1. RML shall maintain compliance with all applicable reporting and recordkeeping requirements contained in 40 CFR 62, Subpart HHH, (40 CFR 62 Subpart HHH).

2. RML shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions covered by this permit.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in units as required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505). RML shall submit the following information annually to the Department by March 1 of each year; the information may be submitted along with the annual emission inventory (ARM 17.8.505).

   a. Estimated amount of material incinerated (pounds per year (lb/yr)); and

   b. Amount of natural gas consumed at the facility.

3. RML shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include ***the addition of a new emissions unit,*** change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).

4. RML shall document, by month, the amount of pathological waste and general refuse combusted in the incinerators. By the 25th day of each month, RML shall total the amount of waste combusted for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.2. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

5. RML shall maintain an incinerator operations log to demonstrate compliance with the requirement that the incinerators shall not be operated simultaneously as described in Section II.A.3. The log shall include the applicable information, the date, time, and operator's initials (ARM 17.8.749).

6. RML shall document the amount of waste incinerated during each charge for each incinerator to demonstrate compliance with the requirement in Section II.A.4. The log shall include the applicable information, the date, time, and operator's initials (ARM 17.8.749).

7. RML shall document, by month, the amount of natural gas consumed at the facility. By the 25th day of each month, RML shall total the amount of natural gas combusted for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.7. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

8. RML shall document, by month, the hours of operation for each emergency diesel-fired generator at the facility. By the 25th day of each month, RML shall total the hours of operation for each diesel-fired generator for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.9. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

9. All records compiled in accordance with this permit shall be maintained by RML as a permanent business record for at least 5 years following the date of the measurement, shall be submitted to the Department upon request, and shall be available at the plant site for inspection by the Department (ARM 17.8.749).

SECTION III: General Conditions

A. Inspection – RML shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (continuous emissions monitoring system (CEMS) or continuous emissions rate monitoring system CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if RML fails to appeal as indicated below.

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving RML of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).

D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement action as specified in Section 75-2-401 *et seq.*, MCA.

E. Appeals - Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection - As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the permitted source.

G. Permit Fee - Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by RML may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit (MAQP) Analysis
Rocky Mountain Laboratories
MAQP #2991-07

I. Introduction/Process Description

A. Permitted Equipment

The U.S. Department of Health and Human Services, National Institutes of Health, Rocky Mountain Laboratories (RML) operates a biomedical research facility located at 903 South 4th Street in Hamilton, Montana. The legal description of the facility is the NE¼ of Section 36, Township 6 North, Range 21 West, Ravalli County, Montana. The research facility consists of the following sources of emissions:

1. Boiler #4 (EU002) is a 66 million British thermal units per hour (MMBtu/hr) natural gas-fired boiler (with No. 1/2 fuel oil as back up) that was manufactured in 1999.

2. Boiler #5 (EU003) is a 66-MMBtu/hr natural gas-fired boiler (with No. 1/2 fuel oil as back up) that was manufactured in 1999.

3. Boiler #6 (EU004) is a 66-MMBtu/hr natural gas-fired boiler (with No. 1/2 fuel oil as back up) that was manufactured in 2005.

4. Boiler #7 (EU008) is a 24.4-MMBtu/hr natural gas-fired boiler (with No. 1/2 fuel oil as back up) that was manufactured in 2015.

5. The Consumat Model C-325PA Pathological Furnace (EU005) is a 6.5-MMBtu/hr natural gas-fired incinerator, which is limited by permit to a maximum charge rate equal to or less than 500 pounds per hour (lb/hr). This incinerator was manufactured in 1985 and is controlled by a hot gas quenching chamber, condensing packed tower absorber, wet venturi scrubber, and wet electrostatic precipitator (WESP).

6. The Consumat Model C-225P Pathological Furnace (EU006) is a 3.5-MMBtu/hr natural gas-fired incinerator, which is limited by permit to a maximum charge rate equal to or less than 500 lb/hr. This incinerator was manufactured in 1985 and is controlled by a hot gas quenching chamber, condensing packed tower absorber, wet venturi scrubber, and WESP.

7. Miscellaneous diesel-fired emergency generators (including one 300-kilowatt (kW) generator, one 500-kW generator, one 750-kW generator, (to be removed in 2014), three 1,250-kW generators, one existing 1,500-kW generator, one 1,500–kW generator (to be added in 2014), and one 2000-kW generator.

8. Miscellaneous fuel oil storage tanks including two 300-gallon tanks, two 500-gallon tanks, one 600-gallon tank , two 800-gallon tanks, one 2,500-gallon tank (to be removed in 2014), one 3000-gallon tank, one 4,000-gallon tank (previously mis-identified as a 5,000 gallon tank) (to be removed in 2014), one 8,000-gallon tank, one 10,000-gallon tank, four 12,000 gallon tanks (to be added in 2014), and one 20,000-gallon tank.

9. Miscellaneous laboratory fume hoods.

B. Source Description

RML operates a biomedical research facility conducting basic and applied research in immunological, allergic, and infectious diseases for the National Institute of Allergy and Infectious Disease, National Institutes of Health, Department of Health and Human Services.

C. Permit History

In 1985, and then again in 1987, the Department of Environmental Quality (Department) determined that the RML facility did not need to obtain an air quality preconstruction permit prior to installing the above-mentioned emission sources. However, the air quality rules changed and the Department determined that it was no longer permissible for facilities to determine their potential-to-emit using controlled emissions. Therefore, since RML does have potential emissions exceeding 25 tons per year (tpy), RML was required to obtain an air quality preconstruction permit. RML was not required to demonstrate compliance with the additional permitting requirements contained in Montana Code Annotated (MCA) 75-2-215 because their incinerators were existing sources of emissions. Consequently, on October 22, 1997, RML submitted a complete permit application for their facility. MAQP **#2991-00** was issued final on January 2, 1998.

On March 17, 2000, RML was issued MAQP #2991-01 to expand the boiler plant at their facility. The expansion involved the installation of two new 66-MMBtu/hr boilers fired primarily on natural gas, with No. 1/2 fuel oil used as back-up fuel. As part of this project, RML also installed a 300-kW emergency generator fired on diesel fuel and a 20,000-gallon above-ground storage tank. The emissions increase resulting from this boiler plant expansion was greater than 15 tpy; therefore, RML was required to submit an application to alter their air quality permit. However, a limitation on the amount of natural gas consumption was placed on the facility to keep the total emissions below the Title V threshold.

RML also included a de minimis project as part of this permit action. RML proposed to upgrade the wet scrubber controlling the incinerator system. The upgrade ensured that the incinerators would be able to meet the emission limitations contained in the Hospital/Medical/Infectious Waste (HMIW) Incinerator New Source Performance Standards 40 Code of Federal Regulations Part 60 (40 CFR 60), Subpart Ce. These emission standards were not applicable to RML's facility at the time of this permitting action because a limitation on the amount of waste defined as Hospital/Medical/Infectious Waste was placed in the air quality permit. The

installation of the wet scrubber did not require a permit because it qualified as a de minimis project, as defined in the Administrative Rules of Montana (ARM) 17.8.705(1)(r). However, the scrubber was listed to avoid future confusion that could result from the installation of the wet scrubber. **MAQP #2991-01** replaced MAQP #2991-00.

RML's air quality MAQP #2991-01 limited the amount of HMIW, as defined under 40 CFR 60, Subpart Ce, to an amount less than 10% of the total waste stream incinerated at the facility. The condition was included in the permit for the purpose of allowing RML to operate as a co-fired combustor meeting the definition of an exempt source under 40 CFR 60, Subpart Ce. On February 15, 2002, the Department received a request from RML to review this determination. The request centered on questions regarding the interpretation and definition of HMIW as applicable to RML. Specifically, RML posed the question as to whether or not the disposable plastic lab-ware used at the facility was considered HMIW.

Based on subsequent information submitted by RML, the Department determined that the plastic lab-ware meets the definition of "…*culture dishes and devices used to transfer, inoculate, and mix cultures*" (40 CFR 60.51(c) *medical/infectious waste*(1)) and is therefore, by this definition, considered HMIW. When plastic lab-ware, as described above, was included with the waste stream as HMIW, RML exceeded the 10% HMIW threshold for the co-combustor exemption and was thus determined to be subject to all applicable requirements of 40 CFR 60, Subpart Ce.

On June 17, 2002, the Department received a request from RML to modify air quality MAQP #2991-01 to include all applicable requirements of 40 CFR 60, Subpart Ce. The permit action removed the condition in Section II.A.3 of MAQP #2991-01, which limited the allowable amount of HMIW incinerated at the facility. The permit action also incorporated all applicable requirements of 40 CFR 60, Subpart Ce. Further, with the new determination of HMIW applicability and in accordance with 40 CFR 60.32e(i), RML was required to obtain and operate pursuant to a Title V operating permit. **MAQP #2991-02** was issued final on August 9, 2002, and replaced MAQP #2991-01.

On October 1, 2002, the Department received a request from RML to modify air quality MAQP #2991-02 to include federally enforceable permit limits for the HMIW incinerators at the facility. The purpose of the proposed limits was to ensure that the incinerators meet the definition of medium HMIW incinerators as defined in 40 CFR 62, Subpart HHH.

In addition, on August 5, 2002, the Department received information from RML regarding equipment changes at the facility. The equipment changes included an increase in the number of fume hoods at the facility, the removal of an 18,000-gallon above ground storage tank (AST), the replacement of a 120 gallon AST with a 300 gallon AST, the replacement of a 550 gallon AST with a 300 gallon AST, the addition of an 8,000 gallon AST, and the addition of a 1,500 kilowatt (kW) emergency generator. After correspondence with RML, the Department determined that because the potential to emit for all previously listed and previously un-permitted equipment is less than 15 tons per year (tpy), the equipment could be added to the list of permitted equipment in accordance with ARM 17.8.705(1)(r). **MAQP #2991-**

03 was issued final on November 8, 2002 and replaced MAQP #2991-02.

On February 6, 2003, the Department received a complete permit application from RML for proposed changes to the existing permitted facility. Specifically, the permit application indicated that RML would add the following emitting units to the facility:

- one 64.5 MMBtu/hr natural gas fired boiler,
- one 1,250 kW emergency/back-up status diesel-fired generator,
- one 2000 kW emergency/back-up status diesel-fired generator,
- one 10,000-gallon fuel oil AST, and
- various laboratory fume hoods.

In addition, the application indicated the RML would remove the following emitting units:

- one 20 MMBtu/hr natural gas fired boiler,
- two 14.7 MMBtu/hr capacity natural gas fired boiler,
- one 400 kW emergency/back-up status generator,
- one 600 kW emergency/back-up status generator, and
- one 2,500-gallon above ground fuel-oil AST.

After submittal of the application, RML informed the Department that the listed equipment proposed for removal would not actually be removed from the site for a period of time. Therefore, the Department suggested, and RML agreed, to retain the equipment in the permit until such time as it is physically removed from the facility.

Further, in accordance with 40 CFR Part 60, Subpart Ce, RML submitted a permit application for a major source Title V operating permit concurrently with the previously discussed application for changes to the existing MAQP. **MAQP #2991-04** replaced MAQP #2991-03.

On March 14, 2013, the Department received an application from RML to modify MAQP #2991-04. Additional information was received on April 16, 2013, and April 23, 2013, to complete the application. The modification included the construction of a new air pollution control device (APCD) on the existing HMIWI consisting of a hot gas quenching system, condensing packed tower absorber, wet venturi scrubber, and a wet electrostatic precipitator (WESP). In addition, the permit modification included the addition of the following equipment:

- one new 1,250 kW/2,200 brake horsepower (bhp) emergency power generator,
- one existing 500 kW/755 bhp emergency power generator
- one existing 750 kW/1,135 bhp emergency power generator
- one existing 500 gallon AST,
- one new 500 gallon AST
- one 600 gallon AST,
- two 800 gallon ASTs,
- one 3,000 gallon AST, and
- 15 laboratory fume hoods.

The modification also included the removal of the following previously decommissioned equipment identified in MAQP #2991-04**:**

- one 2,500-gallon above ground fuel-oil AST
- one 400 kW emergency generator,
- one 600 kW emergency generator,
- one 20 MMBTU/hr boiler, and
- two 14.7 MMBTU/hr boilers.

In addition, RML proposed that the following changes be made to the facility in 2014. These changes were included in this permit action:

- add one 1,500 kW (2,200 bhp) emergency power generator
- add four 12,000 gallon ASTs
- remove the existing 750 kW emergency generator
- remove the existing 2,500 gallon AST, and
- remove the existing 4,000 gallon AST

MAQP #2991-05 replaced MAQP #2991-04.

On February 26, 2015, the Department received a Notice of Intent (NOI) for the installation of a new 24.4 MMBtu boiler. The NOI described the installation of a 24.4 MMBtu/hr boiler that can burn either natural gas or number 2 fuel oil. The purpose of the new boiler was to increase efficiency by displacing operation load on existing, larger natural gas-fired boilers during periods of low demand. The Department as deemed this to be de minimis because the addition of the new boiler did not increase emissions from the facility by more than 5 tpy in accordance with ARM 17.8.745. The Department also corrected permit language to reflect correct federal regulations throughout the permit.

On August 21, 2015, the Department received comments from RML regarding emission limits for the Hazardous Medical Infectious Waste Incinerator (HMIWI). The Department deemed that the current emissions limits were an administrative error and corrected emission limitations to reflect the current emission limitations.

This permit action updated the equipment list in the MAQP as well as updated the permit to reflect the correct HMIWI emission limits and current permit language and rule references used by the Department. **MAQP #2991-06** replaced MAQP 2991-05.

D. Current Permit Action

On January 5, 2021, the Department of Environmental Quality (Department) received an Administrative Amendment (AA) request from RML to correct the million British thermal unit per hour (MMbtu/hr) rating of Boiler #7 (EU008) from 23.7 MMbtu/hr to 24.4 MMbtu/hr. **MAQP #2991-07** replaces MAQP #2991-06.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the ARMs and are available upon request from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 - General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary, using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

   RML shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be

operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2, Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}
11. ARM 17.8.230 Fluoride in Forage

RML must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3, Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, RML shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.

4. ARM 17.8.310 Particulate Matter, Industrial Processes. This rule requires that no person shall cause, allow or authorize to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.

5. ARM 17.8.322 Sulfur Oxide Emissions-Sulfur in Fuel. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions.

6. ARM 17.8.340 Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:

   40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Subpart Dc applies to the three 66-MMBtu/hr natural gas-fired boilers because these units meet the definition of an affected source and were manufactured after June 9, 1989.

   40 CFR Part 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines, and owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005, are subject to this subpart. Based on the information submitted by RML, two of the 1,250 kW bhp emergency diesel-fired engine generators and the 1,500 kW emergency diesel-fired engine generator (to be added 2014) are subject to this subpart because of the manufacturing date. Since this MAQP is written in a de minimis-friendly manner, this subpart may apply to other facility CI ICE in the future.

   40 CFR 62, Subpart HHH – Federal Plan Requirements for Hospital/Medical/Infectious Waste Incinerators on or Before December 1, 2008. Subpart HHH applies to the incinerators at the RML facility. 40 CFR 62, Subpart HHH was determined to apply to the Consumat incinerators at the facility because RML operates an HMIWI that is not covered by an EPA approved and effective State or Tribal plan.

7. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:

   40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to an NESHAP Subpart as listed below:

   40 CFR Part 63, Subpart JJJJJJ- National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Industrial, Commercial, and Institutional Boilers Area Sources. This subpart does not apply because although the natural gas boilers at RML are capable of firing diesel fuel in addition to natural gas, the diesel fuel option is only for back-up use. Section 63.11237 of 40 CFR 63, Subpart JJJJJJ defines a gas-fired boiler as any boiler that burns gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel. Periodic testing of liquid fuel is defined as not exceeding a

combined total of 48 hours per boiler during any calendar year. RML only fires the boilers on diesel for short-term testing and does not run the natural gas boilers on diesel for more than 48 hours per calendar year and therefore is not subject to 40 CFR 63, Subpart JJJJJJ.

40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants (HAPs) for Stationary Reciprocating Internal Combustion Engines (RICE). An owner or operator of a stationary reciprocating internal combustion engine (RICE) at a major or area source of HAP emissions is subject to this rule except if the stationary RICE is being tested at a stationary RICE test cell/stand. An area source of HAP emissions is a source that is not a major source. A RICE is considered stationary if it remains or will remain at the permitted location for more than 12 months, or a shorter period of time for an engine located at a seasonal source. The RICE equipment to be used under MAQP #2991-06 are subject to this subpart because they operate at an area source of HAP emissions and remain at the same location for more than 12 consecutive months.

D. ARM 17.8, Subchapter 5, Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. RML shall submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. A permit fee is not required for the current permit action because the permit action is considered an administrative permit change.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department; and the air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, as described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions which pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7, Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year of any pollutant. RML has a PTE greater than 25 tons per year of CO, SO_2, and NO_X therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. A permit application was not required for the current permit action because the permit change is considered an administrative permit change. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. An affidavit of publication of public notice was not required for the current permit action because the permit change is considered an administrative permit change.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving RML of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement

    ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued

11. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

12. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

13. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

14. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, Montana Code Annotated (MCA).

F. ARM 17.8, Subchapter 8, Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to

regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source since this facility is not a listed source and the facility's PTE is less than 250 tons per year of any pollutant (excluding fugitive emissions).

G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:

   a. PTE > 100 tons/year of any pollutant;

   b. PTE > 10 tons/year of any one Hazardous Air Pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or

   c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #2991-07 for RML, the following conclusions were made:

   a. The facility's PTE is greater than 100 tons/year for NO_x.

   b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year for all HAPs.

   c. This source is not located in a serious PM_{10} nonattainment area.

   d. This facility is subject to current NSPS (40 CFR 60, Subpart Dc, 40 CFR 60, Subpart IIII, and 40 CFR 62 Subpart HHH).

   e. This facility is subject to current NESHAPs (40 CFR 63, Subpart ZZZZ).

   f. This source is not a Title IV affected source

   g. This source is a solid waste combustion unit.

   h. This source is an EPA designated Title V source.

   In accordance with 40 CFR 60.32e(i), RML is subject to the requirements of the Title V operating permit program and must obtain a Title V permit for operations at the facility. Also, RML is considered a major source under the

Title V operating permit program because the facility has the potential to emit greater than 100 tons/year of NO_x. RML currently operates under Title V Operating Permit #OP2991-02 issued January 8, 2016 and submitted a timely and complete Operating Permit Renewal Application on June 12, 2020.

H. Montana Code Annotated (MCA) 75-2-103, Definitions, provides, in part, as follows:

1. "Incinerator" means any single or multiple-chambered combustion device that burns combustible material, alone or with a supplemental fuel or catalytic combustion assistance, primarily for the purpose of removal, destruction, disposal, or volume reduction of all or any portion of the input material.

2. "Solid waste" means all putrescible and nonputrescible solid, semisolid, liquid, or gaseous wastes including, but not limited to, ...air pollution control facilities...

I. MCA 75-2-215, Solid or hazardous waste incineration - additional permit requirements:

1. MCA 75-2-215 requires air quality permits for all new commercial solid waste incinerators.

2. MCA 75-2-215 requires the applicant to provide, to the Department's satisfaction, a characterization and estimate of emissions and ambient concentrations of air pollutants, including HAPs from the incineration of solid waste.

3. MCA 75-2-215 requires the Department reach a determination that the projected emissions and ambient concentrations constitute a negligible risk to public health, safety and welfare.

4. MCA 75-2-215 requires the application of pollution control equipment or procedures that meet or exceed BACT.

The additional permit requirements contained in MCA 75-2-215 do not apply to RML because the incinerators at the facility are existing sources of emissions and have not been modified since the adoption of this legislation.

III. BACT Analysis and Determination

A BACT determination is required for each new or modified source. RML shall install on the new or modified source the maximum air pollution control capability, which is technically practicable and economically feasible, except that BACT shall be utilized.

A BACT determination was not required for the current permit action because the permit change is considered an administrative permit change.

IV. Emission Inventory

Emission Source	PM	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2	Pb	HCl	Cd	Hg	CDD/ CDF
Consumat Incinerators (2)	1.73	1.24	0.047	13.71	0.242	-	0.422	6.82E-04	0.440	4.92E-04	9.49E-04	3.19E-08
Natural Gas Consumption (4 boilers/2 Incinerators) (847 MMcuft/yr natural gas consumption limit)	1.27	1.27	1.27	42.35	35.57	2.33	0.25					
Exist Emergency Diesel Generator #1 (2000 kW/2179 bhp) (500 hr/yr)	0.38	0.38	0.38	13.07	3.00	0.38	4.41					
Exist Emergency Diesel Generator #2 (1500 kW/2200 bhp) (500 hr/yr)	0.39	0.39	0.39	13.20	3.03	0.39	4.45					
Exist Emergency Diesel Generator #3 (1250 kW/2220 bhp) (500 hr/yr)	0.39	0.39	0.39	13.20	3.03	0.39	4.45					
Exist Emergency Diesel Generator #4 (1250 kW/1848 bhp) (500 hr/yr)	0.32	0.32	0.32	11.09	2.54	0.33	3.74					
Exist Emergency Diesel Generator (750 kW/1135 bhp) (500 hr/yr) (to be removed by 2014)	0.20	0.20	0.20	6.81	1.56	0.20	2.30					
Exist Emergency Diesel Generator (500 kW/755 bhp) (500 hr/yr)	0.13	0.13	0.13	4.53	1.04	0.13	1.53					
Existing Emergency Diesel Generator #7 (300 kW/465 bhp) (500 hr/yr)	0.26	0.26	0.26	3.60	0.78	0.29	0.24					
NEW Emergency Diesel Generator (1250 kW/2200 bhp) (500 hr/yr)	0.39	0.39	0.39	13.20	3.03	0.39	4.45					
NEW Emergency Diesel Generator (1500 kW/2200 bhp) (500 hr/yr) (to be added in 2014)	0.39	0.39	0.39	13.20	3.03	0.39	4.45					
Total Emissions	**5.85**	**5.36**	**4.17**	**147.96**	**56.85**	**5.22**	**30.69**	**6.82E-04**	**0.440**	**4.92E-04**	**9.49E-04**	**3.19E-08**

a. Diesel generator engine emissions have been updated with current AP-42 (7/2000) emission factors (MAQP#2991-05).

b. Emissions from the above ground fuel-oil storage tanks were calculated and determined to be negligible

c. Emissions from HMIWI were calculated from the updated permit limits in MAQP#2991-05. Particulate matter was calculated and size distribution factors from AP42, Table 2.3-15 were applied.

CO = carbon monoxide
HAPs = hazardous air pollutants
hp = horsepower
lb = pound
N/A = not applicable
ND = no data available
NO_X = oxides of nitrogen
PM = particulate matter

$PM_{2.5}$ = particulate matter with an aerodynamic diameter of 2.5 microns or less
VOC = volatile organic compounds
SO_2 = oxides of sulfur
Pb = Lead
HCl= Hydrogen Chloride

TPY = tons per year
VOC = volatile organic compounds
yr = year

PM_{10} = particulate matter with an aerodynamic diameter of 10 microns or less

Cd = Cadmium
Hg = Mercury
CDD = Chlorinated Dibenzo-P-Dioxin
CDF = Chlorinated Dibenzofuran
TPH = tons per hour

Consumat Incinerators
Operating Hours: 8760 hr/yr
Operating Limit: 1 incinerator at any given time (Permit Limit)
Dry Standard Volumetric Flowrate: 2,300 dry standard cubic feet per minute (dscfm) (applicant)
Conversion: 1 grain (gr) = 1.428E-4 pounds (lbs)
385.4 (scf/lb-mole) volume in cubic feet of one mole of gas at STP

PM Emissions
Emission Factor: 0.02 grains per dry standard cubic foot (gr/dscf) (permit limit)
Calculations: 0.02 gr/dscf * 2,300 dscfm * 1.428E-4 lb/gr * 60 min/hr = **0.394 lb/hr**
0.394 lb/hr * 8760 hr/yr * 0.005 ton/lb = **1.726 ton/yr**

PM_{10} Emissions (71.9% of total PM) (AP-42, Table 2.3-15)
Emission Factor: 0.02 * 71.9% = 0.01438 gr/dscf
Calculations: 0.01438 gr/dscf*2,300 dscfm* 0.428E-4 lb/gr* 60 min/hr = **0.283 lb/hr**
0.283 lb/hr * 8760 hr/yr * 0.005 ton/lb = **1.24 ton/yr**

$PM_{2.5}$ Emissions (2.7% of total PM) (AP-42, Table 2.3-15)
Emission Factor: 0.02 * 2.7% = 0.00054 gr/dscf
Calculations: 0.00054 gr/dscf *2,300 dscfm * 1.428E-4 lb/gr*60 min/hr = **0.011 lb/hr**
0.011 lb/hr * 8760 hr/yr * 0.005 ton/lb = **0.047 ton/yr**

NOx Emissions (molecular weight (MW) = 46.0055 lb/lb-mol)
Emission Factor: 190 parts per million by volume (ppmv) (permit limit)
Calculations: (190 ppmv /1,000,000)*(2,300 dscfm)* [(46.005 lb/lb-mol)/(385.4 scf/mol)]*60 min/hr = **3.130 lb/hr**
3.130 lb/hr * 8760 hr/yr * 0.005 ton/lb = **13.7 ton/yr**

CO Emissions (molecular weight (MW) = 28.01 lb/lb-mol)
Emission Factor: 5.5 ppmv (permit limit)
Calculations: (5.5 ppmv/1,000,000) * 2,300 dscfm * [(28.1 lb/lb-mol) /(385.1 scf/mol)]*60 min/hr= **0.0552 lb/hr**
0.0552 lb/hr * 8760 hr/yr * 0.005 ton/lb = **0.242 ton/yr**

SO_2 Emissions (MW= 64.0638 lb/lb-mol)
Emission Factor: 4.2 ppmv (permit limit)
Calculation: (4.2 ppmv/1,000,000) * 2,300 dscfm * [(64.064 lb/lb-mol) /(385.1 scf/mol)]*60 min/hr= **0.0963 lb/hr**
0.0963 lb/hr * 8760 hr/yr * 0.005 ton/lb = **0.422 ton/yr**

Pb Emissions
Emission Factor: 0.0079 gr/thousand dscf (permit limit)
Calculations: (0.0079 gr/thousand dscf)*(2,300 dscfm)/1,000 * 1.428E-4 lb/gr*60 min/hr = **1.56E-04 lb/hr**
1.56E-04 lb/hr * 8760 hr/yr * 0.005 ton/lb = **6.82E-04 ton/yr**

HCl Emissions (MW = 36.46 lb/lb-mol)
Emission Factor: 7.7 ppmv (permit limit)
Calculation: (7.7 ppmv/1,000,000) * 2,300 dscfm * [(36.46 lb/lb-mol) /(385.1 scf/mol)]*60 min/hr= **0.101 lb/hr**
0.101 lb/hr * 8760 hr/yr * 0.005 ton/lb = **0.440 ton/yr**

Cd Emissions
Emission Factor: 0.0057 gr/thousand dscf (permit limit)
Calculations: (0.0057 gr/thousand dscf)*(2,300 dscfm)/1,000 * 1.428E-4 lb/gr*60 min/hr = **1.12E-04 lb/hr**
1.12E-04 lb/hr * 8760 hr/yr * 0.005 ton/lb = **4.92E-04 ton/yr**

Hg Emissions
Emission Factor: 0.011 gr/thousand dscf (permit limit)
Calculations: (0.011 gr/thousand dscf)*(2,300 dscfm)/1,000 * 1.428E-4 lb/gr*60 min/hr = **2.17E-04 lb/hr**
2.17E-04 lb/hr * 8760 hr/yr * 0.005 ton/lb = **9.49E-04 ton/yr**

CDD/CDF Emissions (polychlorinated dibenzo-p-dioxins/dibenzofurans)
Emission Factor: 0.37 gr/billion dscf (permit limit)
Calculations: (0.011 gr/thousand dscf)*(2,300 dscfm)/1,000,000,000 * 1.428E-4 lb/gr*60 min/hr =**7.29E-09 lb/hr**
7.29E-09 lb/hr * 8760 hr/yr * 0.005 ton/lb = **3.19E-08 ton/yr**

Natural Gas Consumption (4 Boilers/2 Incinerators)
Maximum Consumption: 847 MMcuft/yr (Permit Limit)

PM Emissions
Emission Factor: 7.60 lb/MMcuft (AP-42, Table 1.4-2, 07/98)
Calculations: 7.60 lb/MMcuft * 847 MMcuft/yr * 0.0005 ton/lb = 1.27 ton/yr

PM_{10} Emissions
Emission Factor: 7.60 lb/MMcuft (AP-42, Table 1.4-2, 07/98)
Calculations: 7.60 lb/MMcuft * 847 MMcuft/yr * 0.0005 ton/lb = 1.27 ton/yr

$PM_{2.5}$ Emissions
Emission Factor: 7.60 lb/MMcuft (AP-42, Table 1.4-2, 07/98)
Calculations: 7.60 lb/MMcuft * 847 MMcuft/yr * 0.0005 ton/lb = 1.27 ton/yr

NOx Emissions
Emission Factor: 100 lb/MMcuft (AP-42, Table 1.4-1, small-uncontrolled, 07/98)
Calculations: 100 lb/MMcuft * 847 MMcuft/yr * 0.0005 ton/lb = 42.35 ton/yr

VOC Emissions
Emission Factor: 5.50 lb/MMcuft (AP-42, Table 1.4-2, 07/98)
Calculations: 5.50 lb/MMcuft * 847 MMcuft/yr * 0.0005 ton/lb = 2.24 ton/yr

CO Emissions
Emission Factor: 84 lb/MMcuft (AP-42, Table 1.4-1, 07/98)
Calculations: 84 lb/MMcuft * 847 MMcuft/yr * 0.0005 ton/lb = 8.47 ton/yr

SO_2 Emissions
Emission Factor: 0.60 lb/MMcuft (AP-42, Table 1.4-2, 07/98)
Calculations: 0.60 lb/MMcuft * 847 MMcuft/yr * 0.0005 ton/lb = 0.25 ton/yr

Emergency Diesel Generator #1 (2000 kW/2179 brake horsepower (bhp))
Hours of Operation: 500 hr/yr (Permit Limit)

PM/ PM_{10}/ $PM_{2.5}$ Emissions
Emission Factor: 0.0007 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2179 bhp * 0.0007 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.38 ton/yr

NOx Emissions
Emission Factor: 0.0240 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2179 bhp * 0.0240 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 13.07 ton/yr

VOC Emissions
Emission Factor: 000705 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2179 bhp * 0.000705 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.38 ton/yr

CO Emissions
Emission Factor: 0.00550 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2179 bhp * 0.00550 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 3.00 ton/yr

SO_2 Emissions
Emission Factor: 0.00809 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)

Calculation: 2179 bhp * 0.00809 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 4.41 ton/yr

Emergency Diesel Generator #2 (1500 kW/2200 bhp)

Hours of Operation: 500 hr/yr (Permit Limit)

PM/ PM_{10}/ $PM_{2.5}$ Emissions

Emission Factor: 0.0007 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.0007 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.39 ton/yr

NOx Emissions

Emission Factor: 0.0240 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.0240 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 13.20 ton/yr

VOC Emissions

Emission Factor: 0.000705 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.000705 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.39 ton/yr

CO Emissions

Emission Factor: 0.00550 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.00550 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 3.03 ton/yr

SO_2 Emissions

Emission Factor: 0.00809 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.00809 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 4.45 ton/yr

Emergency Diesel Generator #3 (1250 kW/2200 bhp)

Hours of Operation: 500 hr/yr (Permit Limit)

PM/ PM_{10}/ $PM_{2.5}$ Emissions

Emission Factor: 0.0007 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.0007 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.39 ton/yr

NOx Emissions

Emission Factor: 0.0240 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.0240 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 13.20 ton/yr

VOC Emissions

Emission Factor: 0.000705 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.000705 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.39 ton/yr

CO Emissions

Emission Factor: 0.00550 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.00550 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 3.03 ton/yr

SO_2 Emissions

Emission Factor: 0.0.00809 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.00205 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 4.45 ton/yr

Emergency Diesel Generator #4 (1250 kW/1848 bhp)

Hours of Operation: 500 hr/yr (Permit Limit)

PM/ PM_{10}/ $PM_{2.5}$ Emissions

Emission Factor: 0.0007 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 1848 bhp * 0.0007 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.32 ton/yr

NOx Emissions

Emission Factor: 0.0240 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 1848 bhp * 0.0240 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 11.09 ton/yr

VOC Emissions

Emission Factor: 0.000705 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)

Calculation: 1848 bhp * 0.000705 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.33 ton/yr

CO Emissions
Emission Factor: 0.00550 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 1848 bhp * 0.00550 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 2.54 ton/yr

SO_2 Emissions
Emission Factor: 0.0.00809 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 1848 bhp * 0.00205 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 3.74 ton/yr

Emergency Diesel Generator (750 kW/1135 bhp)
Hours of Operation: 500 hr/yr (Permit Limit)

PM/ PM_{10}/ $PM_{2.5}$ Emissions
Emission Factor: 0.0007 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 1135 bhp * 0.0007 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.20 ton/yr

NOx Emissions
Emission Factor: 0.0240 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 1135 bhp * 0.0240 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 6.81 ton/yr

VOC Emissions
Emission Factor: 0.000705 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 1135 bhp * 0.000705 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.20 ton/yr

CO Emissions
Emission Factor: 0.00550 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 1135 bhp * 0.00550 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 1.56 ton/yr

SO_2 Emissions
Emission Factor: 0.0.00809 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 1135 bhp * 0.00205 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 2.30 ton/yr

Emergency Diesel Generator (500 kW/755 bhp)
Hours of Operation: 500 hr/yr (Permit Limit)

PM/ PM_{10}/ $PM_{2.5}$ Emissions
Emission Factor: 0.0007 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 755 bhp * 0.0007 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.13 ton/yr

NOx Emissions
Emission Factor: 0.0240 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 755 bhp * 0.0240 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 4.53 ton/yr

VOC Emissions
Emission Factor: 0.000705 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 755 bhp * 0.000705 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.13 ton/yr

CO Emissions
Emission Factor: 0.00550 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 755 bhp * 0.00550 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 1.04 ton/yr

SO_2 Emissions
Emission Factor: 0.0.00809 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 755 bhp * 0.00205 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 1.53 ton/yr

Emergency Diesel Generator (300 kW/465 bhp)

Hours of Operation: 500 hr/yr (Permit Limit)

PM/ PM_{10}/ $PM_{2.5}$ Emissions

Emission Factor: 0.0022 lb/Hp-hr (AP-42, Table 3.3-1, 07/95)
Calculation: 465 bhp * 0.0022 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.26 ton/yr

NOx Emissions

Emission Factor: 0.0310 lb/Hp-hr (AP-42, Table 3.3-1, 07/95)
Calculation: 465 bhp * 0.0310 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 3.60 ton/yr

VOC Emissions

Emission Factor: 0.00247 lb/Hp-hr (AP-42, Table 3.3-1, 07/95)
Calculation: 465 bhp * 0.00247 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.29 ton/yr

CO Emissions

Emission Factor: 0.00668 lb/Hp-hr (AP-42, Table 3.3-1, 07/95)
Calculation: 465 bhp * 0.00668 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.78 ton/yr

SO_2 Emissions

Emission Factor: 0.00205 lb/Hp-hr (AP-42, Table 3.3-1, 07/95)
Calculation: 465 bhp * 0.00205 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.24 ton/yr

Emergency Diesel Generator (1250 kW/2200 bhp)

Hours of Operation: 500 hr/yr (Permit Limit)

PM/ PM_{10}/ $PM_{2.5}$ Emissions

Emission Factor: 0.0007 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.0007 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.39 ton/yr

NOx Emissions

Emission Factor: 0.0240 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.0240 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 13.20 ton/yr

VOC Emissions

Emission Factor: 0.000705 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.000705 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.39 ton/yr

CO Emissions

Emission Factor: 0.00550 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.00550 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 3.03 ton/yr

SO_2 Emissions

Emission Factor: 0.0.00809 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.00205 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 4.45 ton/yr

Emergency Diesel Generator (1500 kW/2200 bhp)

Hours of Operation: 500 hr/yr (Permit Limit)

PM/ PM_{10}/ $PM_{2.5}$ Emissions

Emission Factor: 0.0007 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.0007 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.39 ton/yr

NOx Emissions

Emission Factor: 0.0240 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.0240 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 13.20 ton/yr

VOC Emissions
Emission Factor: 0.000705 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.000705 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 0.39 ton/yr

CO Emissions
Emission Factor: 0.00550 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.00550 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 3.03 ton/yr

SO_2 Emissions
Emission Factor: 0.00809 lb/Hp-hr (AP-42, Table 3.4-1, 10/96)
Calculation: 2200 bhp * 0.00809 lb/Hp-hr * 500 hr/yr * 0.0005 ton/lb = 4.45 ton/yr

V. Existing Air Quality

The RML facility is located in the NE¼ of Section 36, Township 6 North, Range 21 West, Ravalli County, Montana. The air quality of this area is classified as unclassifiable/attainment for all National and Montana Ambient Air Quality Standards (NAAQS and MAAQS).

VI. Ambient Air Impact Analysis

The Department determined that there will be no impacts from this permitting action because this permitting action is considered an administrative action. Therefore, the Department believes this action will not cause or contribute to a violation of any ambient air quality standard.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?

YES	NO	
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

VIII. Environmental Assessment

This permitting action will not result in an increase of emissions from the facility and is considered an administrative action; therefore, and environmental assessment is not required.

Analysis Prepared By: John P. Proulx
Date: January 12, 2021